

## T2500 Quick Reference Card Conventional Command Mode

You may enter a command line of up to 80 characters in upper or lower case with the first command in the line preceded by an "AT" or "at" and the last command followed by a carriage return.

The notation "(n)" in the descriptions represents a decimal numeric option, and "(x)" represents an assigned value. The parentheses should not be typed. If a command is typed without a value when one is expected, the modem will assume a value of 0. The option should immediately follow the command. For example, to turn off the result codes, type Q1 not Q=1. The use of the "=" is explained under the S command in your Reference Manual.

You can repeat the last command line issued by entering "A/" or "a/". Do not enter the "AT" prefix when using this command.

### Result Codes

Number	Message and Description
0	OK — The command was successfully completed.
1	CONNECT — Connected at 300 bps interface speed.
2	RING — An incoming ring has been detected.
3	NO CARRIER — Time to connect has expired or carrier lost.
4	ERROR — A command error has been encountered.
5	CONNECT 1200 — Connected at 1200 bps interface speed.
6	NO DIALTONE — No dial tone was detected.
7	BUSY — Remote connection is busy.
8	NO ANSWER — Five seconds of silence was not detected within 30 seconds when an @ modifier was encountered in the dial string.
10	CONNECT 2400 — Connected at 2400 bps interface speed.
11	CONNECT 4800 — Connected at 4800 bps interface speed.
12	CONNECT 9600 — Connected at 9600 bps interface speed.
14	CONNECT 19200 — Connected at 19200 bps interface speed.
40	CARRIER 300 — Carrier detected at 300 bps (Bell 103 mode).
46	CARRIER 1200 — Carrier detected at 1200 bps (Bell 212A or V.22 mode).
47	CARRIER 2400 — Carrier detected at 2400 bps (V.22bis mode).
50	CARRIER 9600 — Modem is operating in PEP mode.
70	PROTOCOL: NONE — Error control is not being used.
71	PROTOCOL: ERROR-CONTROL/LAP-B — PEP or MNP error control is being used.

### Command Summary

Command	Parameter	Description	Default
~		Access Character Used to enter commands which are not normally available in Conventional Command Mode. All commands following a "~" character to the end of the command line are interpreted in Enhanced Command Mode.	
A		Answer	
A/		Repeat previous command	
B(n)	0 or 1	Bell Mode Selection 0 CCITT (V.21 or V.22) 1 Bell (103J or 212A)	B1
D(n)	0-9, A-D, *, # Modifiers:	Dial number W Wait for dial tone P Pulse dialing T Tone dialing , Timed wait ! Initiate momentary on-hook flash @ Wait for quiet answer R Switch to answer mode when remote modem answers ; Remain in command mode after dialing S=n Reference a number in number directory	Pulse dialing
E(n)	0 or 1	Echo Command ON/OFF 0 Off 1 On	E1
F(n)	1	Echoplex ON/OFF 0 Not supported 1 No echo	F1
H(n)	0 or 1	Hook ON/OFF 0 Hang up (on-hook) 1 Pick up phone line (off-hook)	
I(n)	0 - 2	Information 0 Return product ID code 1 Return 3 digit number 2 Return OK result code	
L(n)	0 - 3	Speaker Volume 0 Low 1 Low 2 Medium 3 High	L2
M(n)	0 - 3	Speaker ON/OFF 0 Speaker off 1 Speaker on while connecting 2 Speaker always on 3 Speaker on after dialing until carrier detected	M1

### Command Summary (continued)

Command	Parameter	Description	Default
N(n)	0 or 1	Transmission Speed Negotiation 0 Connection speed must match value specified by S37 1 Allow speed negotiation to maximum specified by S37	N1
O(n)	0 or 1	On-Line 0 Place modem in data mode 1 Place modem in data mode and initiate retrain	
Q(n)	0 - 2	Quiet Enable 0 Modem returns result codes 1 Result codes disabled 2 Result codes returned when originating a call but not when answering a call	Q0
S(n)=(x)		Set register n to value x	
S(n)?		Read contents of register n	
V(n)	0 or 1	Verbose ON/OFF 0 Return numeric response 1 Return English response	V1
W(n)	0 or 1	Negotiation Progress Reporting 0 Progress not reported 1 Progress reported	W0
X(n)	0 - 4	Result Code and Dialing Capabilities <i>See Reference Manual</i>	X4
Y(n)	0 or 1	Disconnect on Break 0 Modem ignores break 1 Modem disconnects on break	Y0
Z(n)	0 - 1	Reset 0 Reset and recall profile A 1 Reset and recall profile B	
&C(n)	0 or 1	Data Carrier Detect Control 0 DCD always on 1 DCD on when carrier detected	C0
&D(n)	0 - 3	Data Terminal Ready Interpretation 0 Modem ignores DTR 1 Modem enters command mode when DTR is dropped 2 Modem disconnects and enters command mode when DTR is dropped 3 Modem resets and enters command mode when DTR is dropped	D0
&F	0 - 3	Recall Factory Parameters <i>See Reference Manual</i>	
&G(n)	0 - 2	Guard Tone Selection 0 No guard tone 1 550 Hz guard tone 2 1800 Hz guard tone	&G0



## T2500 Quick Reference Card Enhanced Command Mode

You may enter a command line of up to 80 characters in upper or lower case with the first command in the line preceded by an "AT" or "at" and the last command followed by a carriage return. Note that if the S63 register is set to 0, you should not enter the "AT" at the beginning of the command line.

The notation "(n)" in the descriptions represents a decimal numeric option, and "(x)" represents an assigned value. The parentheses should not be typed. If a command is typed without a value when one is expected, the modem will assume a value of 0. The option should immediately follow the command. For example, to turn off the result codes, type Q1 not Q=1. The use of the "=" is explained under the S command in your Reference Manual.

You can repeat the last command line issued by entering "A" or "a". Do not enter the "AT" prefix when using this command.

### Result Codes

The following result codes are returned when the X command setting is X0 through X3. If the X command setting is X10 through X14, Conventional Command Mode result codes are returned.

Number	Message and Description
0	OK—The command was successfully completed.
1	CONNECT 300—Connected at 300 bps (Bell 103 Compatible).
2	RING—An incoming ring has been detected.
3	NO CARRIER—Time to connect has expired or carrier lost.
4	ERROR—A command error has been encountered.
5	CONNECT 1200—Connected at 1200 bps (Bell 212A or V.22 Compatible).
6	NO DIAL TONE—No dial tone was detected.
7	BUSY—Remote connection is busy.
8	NO ANSWER—Five seconds of silence was not detected within 30 seconds when an @ modifier was encountered in the dial string.
10	CONNECT 2400—Connected at 2400 bps (V.22 bis Compatible).
11	CONNECT 4800—Connected at 4800 bps (V.32 fallback).
12	CONNECT 9600—Connect at 9600 bps (V.32 Mode).
50	CONNECT FAST—Connected to a modem using the Packetized Ensemble Protocol (PEP).
52	RRING—Remote connection is ringing.
20	CONNECT 300/REL—MNP connection at 300 bps.
22	CONNECT 1200/REL—MNP connection at 1200 bps.
23	CONNECT 2400/REL—MNP connection at 2400 bps.
24	CONNECT 4800/REL—MNP connection at 4800 bps.
25	CONNECT 9600/REL—MNP connection at 9600 bps.
61	CONNECT FAST/KERM—PEP connection with Kermit support.
62	CONNECT FAST/XMDM—PEP connection with Xmodem support.
63	CONNECT FAST/UUCP—PEP connection with UUCP support.
70	CONNECT FAST/COMP—PEP connection with data compression.

Number	Message and Description
71	CONNECT FAST/KERM/COMP—PEP connection with Kermit support and data compression enabled.
72	CONNECT FAST/XMDM/COMP—PEP connection with Xmodem support and data compression enabled.
73	CONNECT FAST/UUCP/COMP—PEP connection with UUCP support and data compression enabled.

### Command Summary

Command	Parameter	Description	Default
A		Answer	
A/		Repeat previous command	
C(n)	0 or 1	Turn Carrier ON/OFF 0 Off 1 On	
D(n)	0-9, A-D, *, # Modifiers:	Dial number W Wait for dial tone N Reference number in number directory P Pulse dialing T Tone dialing . Timed wait I Initiate momentary on-hook flash @ Wait for quiet answer R Switch to answer mode when remote modem answers ; Remain in command mode after dialing \ Reference a number in number directory	Pulse dialing
E(n)	0 or 1	Echo Command ON/OFF 0 Off 1 On	E1
F(n)	0-2	Echoplex ON/OFF 0 On 1 Off 2 On plus linefeed after carriage return	F1
G		Go to Voice	
H(n)	0 or 1	Hook ON/OFF 0 Hang up (on-hook) 1 Pick up phone line (off-hook)	
I(n)	0-6	Information 0 Return product ID code 1 Return diagnostic status 2 Return current transmission mode 3 Return firmware version level 4 Return negotiated register values	
M(n)	0-3	Speaker ON/OFF 0 Speaker off 1 Speaker on while connecting 2 Speaker always on 3 Speaker on after dialing until carrier detected	M1
N(n)=(x)	0-9	Set Number Directory	
N(n)?	0-9	Display Number	
N?	0-9	Display Number Directory and S-registers	
O		On-Line Place modem in data mode	
Q(n)	0-9	Quiet Enable 0 Return result code for both local and remote modems	Q5

### Command Summary (continued)

Command	Parameter	Description	Default
Q(n) Cont'd		1 Return result code for remote modem only 2 Return result code for local modem only 3 Do not return result code for either local or remote modem 4-9 Partial quiet modes (see your Reference Manual)	
S(n)=(x)		Set register n to value x	
S(n)?		Read contents of register n	
U		Update System Password	
V(n)	0 or 1	Verbose ON/OFF 0 Return numeric response 1 Return English response	V1
W(n)	0 or 1	Negotiation Progress Reporting 0 Progress not reported 1 Progress reported	W0
X(n)	0-3, 10-14	Result Code Basic/Extended 0 Basic result codes 1 Extended result codes 2 MNP result codes 3 MNP and PEP result codes 10-14 Conventional result codes	X1 ECM X14 CCM
Y(n)	0 or 1	Disconnect on Break 0 Modem ignores break 1 Modem disconnects on break	Y0
Z(n)	0-2	Reset 0 Reset and recall default profile 1 Reset and recall profile A 2 Reset and recall profile B	Z0
&B		Blind Command	
&E(n)	0-2	Use EEPROM Parameters 0 Recall default profile 1 Recall profile A 2 Recall profile B	
&F		Recall Factory Parameters See Reference Manual	
&N(n)	0-2	Display EEPROM Parameters 0 Display default profile 1 Display profile A 2 Display profile B	
&P(n)	0 or 1	Pulse Dialing Make/Break Ratio 0 U.S. timing 1 U.K. timing	P0
&R(n)	0 or 1	Force Retrain or Renegotiate 0 Retrain 1 Renegotiate	
&T(n)	0-8	Initiate Test Function See Reference Manual	T4
&W(n)	0-2	Write Configuration Parameters 0 Save to default profile 1 Save to profile A 2 Save to profile B	
%		Remote Modem Access	

### Register Summary

Register	Range	Description	Default
S0	0-255	Answer on Ring Number	1-ECM 0-CCM
S1	0-255	Count of Rings	
S2	0-255	Escape Character (ASCII)	43
S3	0-96, 123-127	Carriage Return Character (ASCII)	13
S4	0-255	Line Feed Character (ASCII)	10
S5	0-96, 123-127	Backspace Character (ASCII)	8
S6	2-255	Dial Tone Wait Time (seconds)	2
S7	1-255	Wait for Carrier Time (seconds)	40-ECM 30-CCM
S8	0-255	Pause Time for Comma (seconds)	2
S9	1-255	Carrier Detect Time (100 ms units)	6
S10	1-255	Carrier Loss to Disconnect Time (100 ms units)	7-ECM 14-CCM
S11	50-255	Touch Tone Timing (milliseconds)	70-ECM 95-CCM
S12	0-255	Escape Sequence Guard Time (1/50 second units)	50
S18	0-255	Test Termination Timer	0
S25	0-255	DTR Delay Timing (10 ms units)	5
S26	0-255	RTS to CTS Delay Interval (100 ms units)	0
S38	0-255	Delay Before Disconnecting	0-ECM 20-CCM
S41	0-255	Inactivity Timer (tenths of hours)	0
S45	0 or 255	Remote Access Enable 0 Disable Remote Access 255 Enable Remote Access	0
S46	0-3	Callback Security 0 Callback security disabled 1 Callback security enabled 2 Callback security enabled with password reverification 3 Pass through security enabled, no callback initiated	0
S47	0-255	DSR/DCD Delay Time (50 ms units)	4
S48	0 or 1	Eight Bit Comparison 0 Compare lower seven bits only 1 Compare all eight bits	0
S49	0 or 1	Product Identification String 0 I0 returns 96X ID code 1 I0 returns 123 ID code	0
S50	0-3, 254, 255	Transmission Mode 0 Auto Speed Determination 1 300 bps (Bell 103) 2 1200 bps (Bell 212 A or V.22) 3 2400 bps (V.22bis) 254 Use last AT command speed 255 PEP mode	0-ECM 254-CCM
S51	0-5, 252, 254, 255	Interface Speed 0 300 bps 1 1200 bps	255-ECM 252-CCM

Register Summary (continued)

Register	Range	Description	Default
S51 cont'd		2 2400 bps 3 4800 bps 4 9600 bps 5 19200 bps 252 Autobaud (no type-ahead) 254 Autobaud (19200 bps default) 255 Autobaud (9600 bps default)	
S52	0-4	DTR Interpretation 0 DTR is ignored 1 The modem disconnects and disables auto-answer if DTR is not present 2 The modem disconnects and reloads operating parameters if DTR is dropped, and will not auto-answer if DTR is not present 3 Modem enters command mode when DTR is dropped 4 Modem hangs up and enters command mode when DTR is dropped	0
S54	0-4	Break Signal Interpretation <i>See Reference Manual</i>	0-ECM 3-CCM
S55	0-3	Escape Character/Sequence Interpretation <i>See Reference Manual</i>	0
S56	0-255	XON Character (ASCII)	17
S57	0-255	XOFF Character (ASCII)	19
S58	0-7	Flow Control Used by DTE 0 No flow control 1 Use RTS/CTS flow control in half duplex mode 2 Use RTS flow control in full duplex mode 3 Use XON/XOFF protocol 4 Use both XON/XOFF and RTS flow control 5 Use ENQ/ACK protocol 6 Use both ENQ/ACK and XON/XOFF protocol 7 Use transparent XON/XOFF	3-ECM 2-CCM
S59	0-255	Prompt Character (ASCII)	0
S61	0-255	Speaker Volume 0 Speaker is off 1-99 Low volume 100-199 Medium volume 200-255 High volume	150
S62	2-255	Break Length Time (150 ms units)	3
S63	0-2	Command Mode Selection 0 Enhanced Command Mode AT prefix not allowed 1 Enhanced Command Mode AT prefix required 2 Conventional Command Mode	1-ECM 2-CCM
S64	0 or 1	Dial/Answer Sequence Abort 0 Abort dial/answer sequence if character sent by DTE before connection is established 1 Ignore characters sent by DTE while dialing or answering a call	0

Register Summary (continued)

Register	Range	Description	Default
S65	0 or 1	XON/XOFF Failsafe 0 Normal XON/XOFF flow control 1 Reissue XOFF if DTE does not suspend data transmissions	0
S66	0-2	Lock Interface Speed 0 Change speed to match connection, no flow control 1 Lock speed, use flow control 2 Lock speed, use flow control if MNP connection established	0-ECM 2-CCM
S67	0 or 1	CTS Interpretation 0 CTS is on when modem is ready to accept data 1 CTS turns on 200 ms after RTS goes active	0
S68	0, 2-6, 255	Flow Control Used by DCE 0 No flow control 2 Use CTS flow control in full duplex mode 3 Use XON/XOFF protocol 4 Use both XON/XOFF and CTS flow control 5 Use ENQ/ACK protocol 6 Use both ENQ/ACK and XON/XOFF protocol 255 Use flow control specified by S58	255
S69	0-2	XON Signal Handling 0 XON processed, not passed on 1 XON processed, passed on 2 <i>See Reference Manual</i>	0
S70		Instantaneous Transmit Rate	
S71		Transmit Bits Per Channel	
S72		Instantaneous Receive Rate	
S73		Receive Bits Per Channel	
S74		Received Packets Retransmitted	
S75		Packets Accepted	
S76		Equivalent Line Noise Profile	
S77		Frequency Offset	
S78		Slow Mode Line Quality	
S90	0 or 1	V.22 Mode Enable 0 212A Emulation 1 V.22 Emulation	0
S91	0-2	Guard Tone Selection 0 No guard tone 1 1800 Hz guard tone 2 550 Hz guard tone	0
S92	0-2	Answering Sequence Selection 0 Normal search sequence 1 PEP answer tones last 2 Normal search sequence but preceded by V.25 answer tone	0
S93	3-255	V.32 AC Transmit Duration (100 ms units)	8

Register Summary (continued)

Register	Range	Description	Default
S94	0 or 1	Transmission Speed Negotiation 0 Use speed specified by S50 register only 1 Negotiate speed to maximum specified by S50 register 2 Fallback within a specified mod scheme only 3 Use appropriate fallback	1
S95	0-2	MNP Operating Mode 0 Normal mode - MNP disabled 1 MNP reliable mode 2 MNP autoreliable mode	0-ECM 2-CCM
S96	0 or 1	MNP Data Compression Enable 0 Disable data compression 1 Enable data compression	0
S97	0-1	V.42 LAP-M Enable 0 Disable LAP-M 1 Enable LAP-M	0
S98	0,1,2, or 3	V.42bis Data Compression 0 No data compression 1 Data compression in transmit direction only 2 Data compression in receive direction only 3 Data compression in both transmit and receive directions	3
S100	0 or 1	Reverse Answer/Originate Mode 0 Normal mode 1 Reverse mode	0
S101	0-4	Continuous Answer/Originate 0 Connect normally 1 Attempt to connect as answer modem every 20 seconds 2 Attempt to connect as originate modem every 20 seconds 3 Immediately attempt to connect as answer modem 4 Immediately attempt to connect as originate modem	0
S102	0-2	Auxiliary Telco Lead Settings (Rackmount and SDLC version only) 0 Ignore auxiliary leads 1 Use A/A1 function 2 Use M/MIC function	0
S104	0-4	Automatic Dialing Options <i>See Reference Manual</i>	0
S105	0-2	T/D Switch Enable/Disable 0 Disable the T/D switch 1 Enable the T/D switch 2 Enable T/D switch only when modem is off-hook	1
S106	0 or 1	V.42 Detection Enable 0 Modem will not perform detection 1 Modem will perform detection of V.42 mode	0
S107	0-255	Detection Timer	20
S108	0-1	V.42 Match Count 0 Match count is 4 1 Match count is 1	0

Register Summary (continued)

Register	Range	Description	Default
S110	0-1,255	PEP Data Compression Enable 0 Disable data compression 1 Enable data compression 255 Enable data compression only if remote modem's S110 register is set to 1	255
S111	0, 10-14, 20, 30, 255	File Transfer Protocol Support <i>See Reference Manual</i>	255
S112	0-255	Kermit Mark Character (ASCII)	1
S121	0 or 1	Echo Suppressor Compensation 0 Disable echo suppressor compensation 1 Enable echo suppressor compensation	0
S130	0-6	Data Set Ready Interpretation 0 DSR is always on 1 DSR is turned on when answer tone is detected 2 DSR is on when modem ready 3 DSR on when modem ready If carrier is lost, DSR turns off for time specified by S47 4 DSR on when modem off-hook 5 DSR is turned on when carrier is detected 6 DSR follows DTR	0-CCM 2-ECM
S131	0-4	Data Carrier Detected Interpretation 0 DCD is always on 1 DCD is turned on when carrier is detected 2 DCD is on when modem ready 3 DCD on when modem ready If carrier is lost, DSR turns off for time specified by S47 4 The DCD signal will be the inverse of the CTS signal	0-CCM 2-ECM
S169	0-2	Synchronous Dial Command Set Enable 0 Disable Synch Dialing 1 Enable IBM 4941 2 Enable V.24bis	0
S222	0-255	Enhanced Command Mode Access Character (ASCII)	
S255	0-2	Default User Profile Selection 0 Recall profile specified by A/B switch. 1 Recall profile A after power on	

SDLC Register Summary (Optional)

Register	Range	Description	Default
S150	0-3	Asyn/SDLC Mode Selection 0 Asynchronous Mode 1 SDLC Mode 2 Transparent Sync Mode 3 Asyn/Sync Mode	0
S151	1-5	SDLC Interface Speed 1 1200 bps 2 2400 bps 3 4800 bps 4 9600 bps 5 19200 bps	4
S152	0-2	SDLC Switched/Nonswitched 0 Nonswitched Mode 1 Switched Mode 2 Special Switched Mode	1
S153	0 or 1	SDLC Full/Half Duplex 0 Full Duplex Mode 1 Half Duplex Mode	1
S154	0 or 2	SDLC Clock Options 0 Use DCE clocking 1 Use DTE clocking 2 Use DCE clocking	0
S155	0 or 1	SDLC NRZ/NRZI Data Encoding 0 Use NRZ encoding 1 Use NRZI encoding	0
S157	0-255	SDLC Disconnection Delay Time	0
S158	0-255	SDLC DSR Delay Time	0
S160	0-255	SDLC Frame Retransmit Limit	10
S161	0-255	SDLC Device Timeout	20
S162	0-255	SDLC Nonproductive Timeout	2
S163	0-255	SDLC Retransmit Timeout	3
S164	1-32	SDLC Primary Poll Rate	7